

GREEN BUILDINGS INNOVATION CLUSTER (GBIC)

Experiment • Exhibit • Exchange



OUTLINE

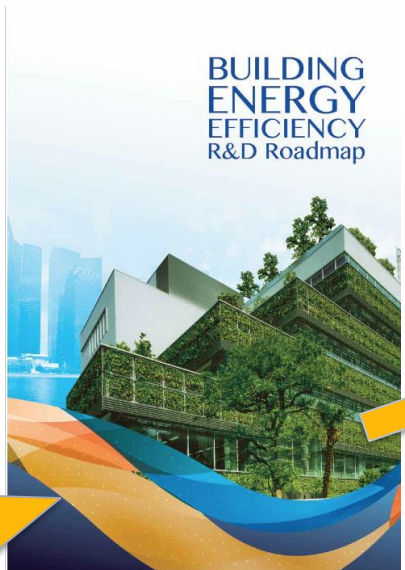
- Background
- Objectives
- GBIC-Demo
- Concept, Approach and Eligibility
- Summary



BACKGROUND



Research Development & Demonstration (RD&D) to play a greater role in the next phase of development of green buildings.



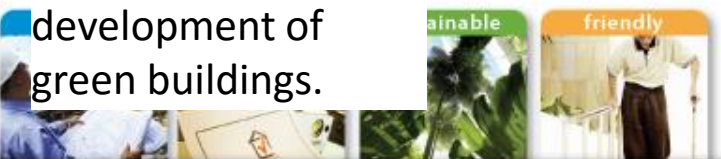
Building Energy Efficiency R&D Roadmap to address energy and climate change challenge.

Green Buildings Innovation Cluster (GBIC)

A \$52 million integrated research, development and demonstration (RD&D) Hub:



GBIC established partnerships with eight Green Mark Champions: Ascendas Land Singapore Pte Ltd, CapitaLand Limited, City Developments Limited, Housing and Development Board, JTC Corporation Keppel Land International Limited, National University of Singapore and the Nanyang Technological University



OBJECTIVES

GREEN BUILDINGS INNOVATION CLUSTER (GBIC)

- A one-stop integrated RD&D hub to **experiment**, **exhibit**, and **exchange** knowledge of promising building energy efficient solutions
- **Accelerate commercialisation** of promising building energy efficient technologies and solutions





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BCA to launch S\$20m scheme to lead green technology testing

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PUBLISHED: 4:12 AM, MARCH 12, 2015

SINGAPORE — The Building and Construction Authority (BCA) will roll out a S\$20 million scheme to spearhead the testing of energy-efficient technology in buildings.

The move, called the GBIC-Building Energy Efficient Demonstrations Scheme (GBIC-Demo), is the latest in encouraging the development of green building technology.

In a statement yesterday, the BCA said the technology that will be tested under the scheme should achieve 20 to 40 per cent improvement over the current best-in-class technology.

InsideBusiness

South Korea's LG Group says plans record 6.3 trillion R&D investment in 2015

Dollar shines, stocks on edge on U.S. rate prospects

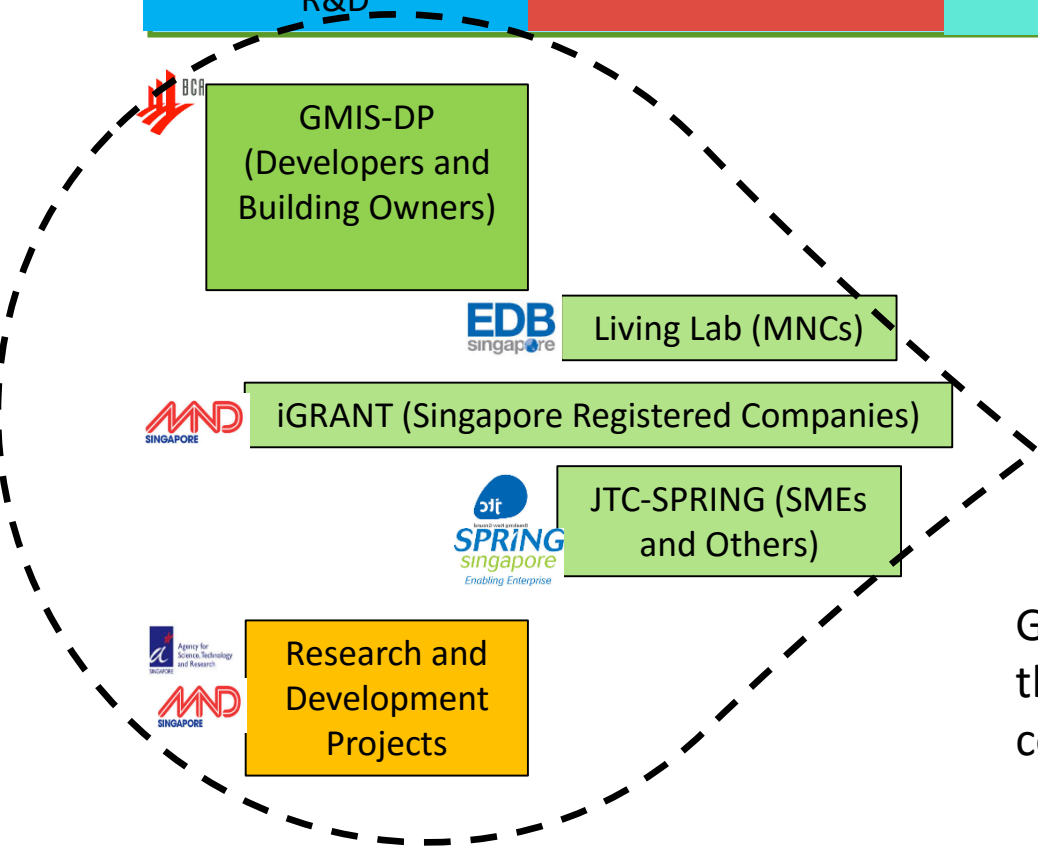
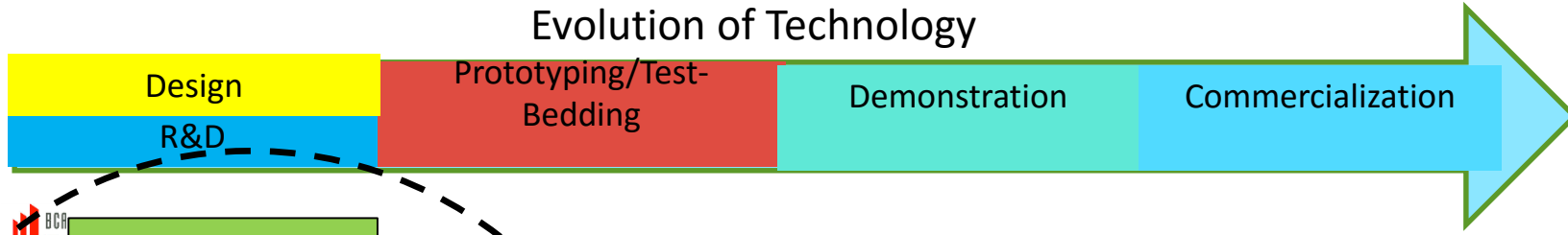
American Eagle, Aeropostale abandon logos as they look for edge

The Most Business

READ COMMENTED

Concept

Evolution of Technology



GBIC-Demo as the vehicle to bring these schemes closer towards commercialization



Concept

Challenges identified:

1. Few R&D projects translated into prototypes and commercialized
2. Lack facilities to carry out demonstrations
3. Absence of Validated Performance Data
4. Risk Adverse Building Owners

Propositions

1. Co-funding to share the risk of Demonstration
2. Secure partners to host demonstrations
3. Validate performance of demonstrated technologies
4. Share information with wider audience



GBIC- Demonstration (GBIC-Demo)



To promote and bring innovations closer to market adoption



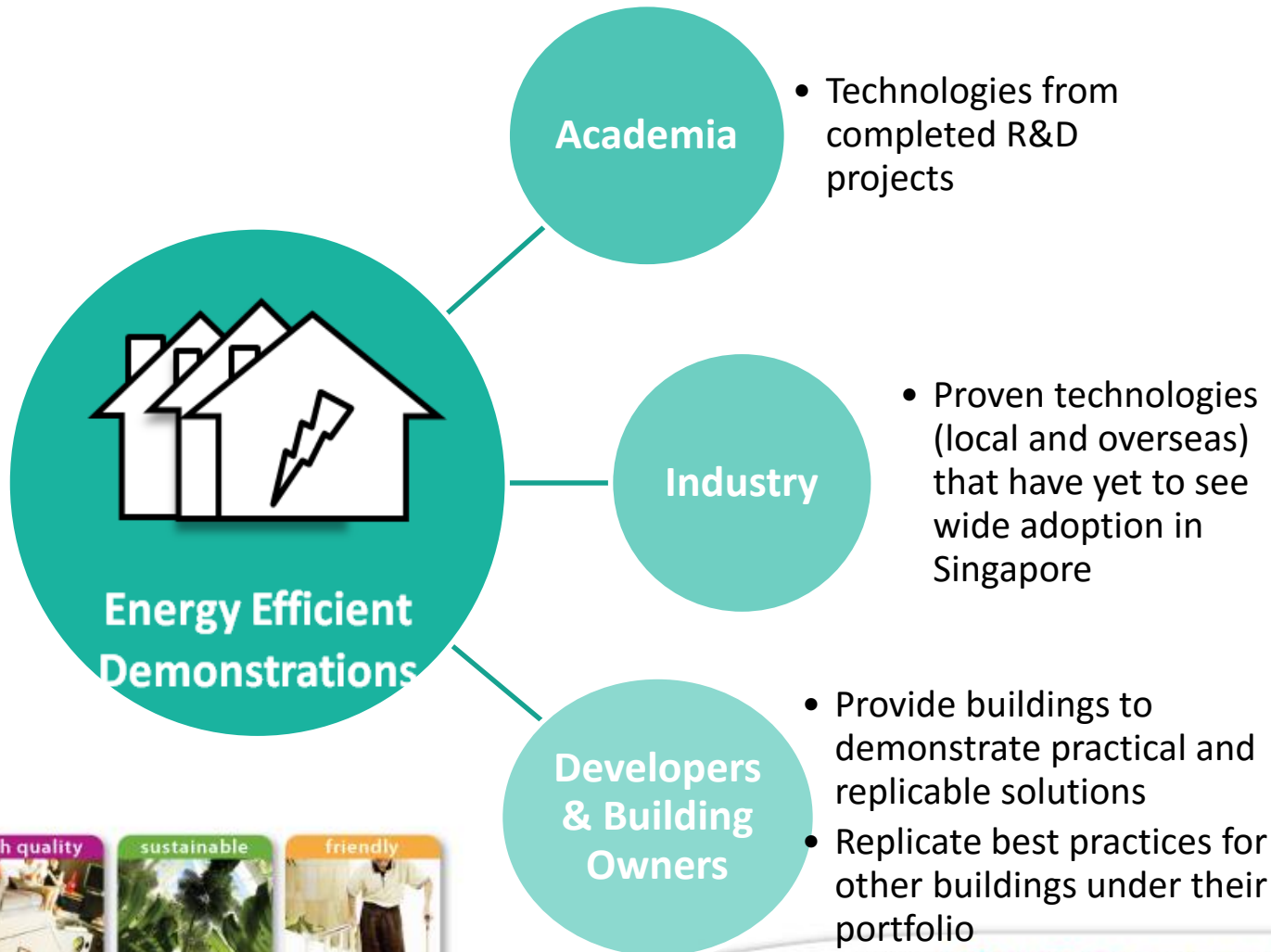
To aid policy formulation



To gain performance data and set new benchmarks for energy efficiency improvement in buildings



GBIC- Demonstration (GBIC-Demo)



GBIC- Demonstration (GBIC-Demo)

Criteria	Details
Funding Support	Support up to 70% qualifying cost or \$3m (whichever is lower) per project demonstration. Claims are on a reimbursement basis.
Fund to cover	<ul style="list-style-type: none"> a) Design and customisation, b) Equipment & Materials, c) Installation and Commissioning, d) Instruments for data capturing, (to proposed M&V protocol) e) Manpower (Research and Labour), f) Removal of Technology.
Application	Fully operational <u>occupied</u> buildings
Targeted energy savings	<p>20% energy savings compared to best-in-class technology and</p> <ul style="list-style-type: none"> ➤ Building Energy Utilisation Intensity to top 10% of EUI <u>or</u> ➤ >20% improvement in energy savings compared to best in class energy performing building.
Submission	Anytime, once the project schedule is firmed up.
Timeline	Up to 3 years with at least 12 months of validated performance data after Defects Liability Period (DLP)

GBIC- Demonstration (GBIC-Demo)

Stages	Deliverables	Tranche
1. Design and customisation	Completion of design work and modifications	1 st Claim - Cover CAPEX
2. Equipment, Installation and Commissioning	Receipt of delivery order & commissioning report	
3. Mid-Term Review (6-12 months after implementation depending on project timeline)	<u>Mid-Term Review</u> <ul style="list-style-type: none"> • Performance (meet energy savings target) • Submission of Mid-Term Report, Presentation and Assessment & Recommendations 	<u>50% of remaining claim</u> a) Performance accounts for half; b) Report submission accounts for 2 nd half
4. Completion of Project with detailed M&V report submitted independent researcher	<u>Final Review</u> <ul style="list-style-type: none"> • Performance (meet energy savings target) • Submission of Final Report, Presentation & Feasibility of project for replication 	<u>Rest of the remaining claim</u> Breakdown same as above

Eligibility

1. Singapore-based companies/ Research Institutions & Academia/ Public Sector
2. The building where the demonstration will take place must be located in Singapore.
3. Project Team with Lead applicant (Developer/ Building Owner) working with the Technology Provider/System integrator and Researcher/Verification partner (3rd party is encouraged).
4. Project should not have received funding from other agencies for the same purpose.
4. Lead applicant must show evidence of financial capacity to complete the project on its own, or with a partner.
5. Project should not have commenced at the time of application.



THANK YOU

